COMMENTS OF MAKHTESHIM AGAN OF NORTH AMERICA, INC. ON PUBLIC REVIEW STAFF DRAFT, AMENDMENTS TO THE WATER QUALITY CONTROL PLAN FOR THE SACRAMENTO RIVER AND SAN JOAQUIN RIVER BASIN (AUGUST, 2005)

October 5, 2005

Introduction

Makhteshim Agan of North America, Inc. ("MANA") is the sole supplier of technical diazinon pesticide formulated and sold to farmers and orchardists in California. MANA recognizes the substantial effort that CVRWQCB staff have devoted to developing the proposed amendments, and offers these comments on the Public Review Staff Draft (the "Draft") in a constructive effort to assist the staff and Board in reaching final determinations.

The comments presented after this Introduction follow the format requested by the Board staff. However, four overriding points merit initial emphasis.

First, the supplemental diazinon labeling described at page 20 of the Draft is now fully in place. Even before adoption of the supplemental label, the diazinon water monitoring trend was dramatically downward, especially in the San Joaquin mainstem. The favorable trend is revealed in the tables included with the Draft, in the analysis of the 2002-03 diazinon monitoring data attached as Attachment A to these comments, and in the initial analysis of the additional data recently published on the Board's website in connection with this proposal which is Attachment B. Attachment A's analysis shows that only 4% of the diazinon samples taken from the San Joaquin River during 2002-03 period exceeded 0.080 ug/L and only 1.4% exceeded 0.165 ug/L. The Attachment B analysis shows a similar result: 4.65% of the 473 samples exceeded 0.080 ug/L and 1.48% exceeded 0.160 ug/L.

Compliance with the new labeling is likely to accelerate the trend. If any exceedances are measured in the future, they likely will be the result of the failure of one or a handful of individual applicators to follow label directions.

This reality emphasizes why it is so important to minimize the obligations imposed by the proposed Basin Plan amendments on the majority of diazinon users (and other "Ag Waiver" coalition members). This in turn translates to not requiring excessive monitoring or report writing by individual growers or coalitions, and assuring that any actions that monitoring reveals to be necessary are carefully targeted and cost-effective. The Board must realize that the imposition of the significant costs associated with overly-broad monitoring programs itself provides an incentive to growers to "deselect" use of diazinon products. It is neither fair nor appropriate for the Board to impose burdens that may have that effect without very first exploring less expensive options.

Second, there is no rational basis to imposing any obligations on growers based on any "additive toxicity" analysis. Attachments A and B also show that there is a very low percentage of samples containing detected concentrations of both diazinon and chlorpyrifos: 6.8% and 4.1% of the new and old respectively. The low frequency of co-occurrence of the insecticides is not surprising since the use patterns of chlorpyrifos and diazinon are different.

Further, Attachment C shows that during the periods covered by the data presented in Attachments A and B, even where co-occurrence was found, in most cases neither diazinon nor chlorpyrifos was found at a level of concern. For example, in 59% of the 32 samples from the newer data in which co-occurence was found, neither pesticide exceed the very conservative 0.160 ug/L and 0.25 ug/L acute targets (which include safety factors). This translates to co-occurrences with exceedances in only 2.77% of the entire data set. Similarly, in the older data

set, concentrations in 62% of the 13 samples in which co-occurrence was found were below those thresholds. This means that only co-occurrence with exceedences existed in only 1.59% of the entire data set.

In his peer review comments, Dr. Felsot provided another concern with the draft's discussion of additivity. He properly pointed out that the assumption that concentrations of diazinon and chlorpyrifos are additive is not valid when they are below a certain threshold of response, such as an LD 50. In the current situation, where established *Ceriodaphnia* genus mean acute values are 0.440 ug/L for diazinon and 0.060 ug/L for chlorpyrifos, applying this yardstick shows potentially-meaningful co-occurrence in only 9% of the 32 sample subset of the newer samples in which co-occurrence was found and 8% of the analogous 13 sample subset of older samples. See Attachment C. These figures, in turn, translate to only 0.34% and 0.61% of the total newer and older sample sets.

In short, the data further confirm the inappropriateness of undertaking any additivity analysis here.

Third, another valid and important aspect of Dr. Felsot's "peer review" comments is not reflected in the draft report: the Draft incorrectly uses the water quality target (which contains a safety factor) in the denominator of the additivity equation for diazinon and chlorpyrifos. Dr. Felsot is correct in advising that the denominator in this formula must be based on a definitive toxicity endpoint (*e.g.*, an LC50), not a value that already includes a 2-fold safety factor. If the Board continues to include any additivity analysis or requirement in the Basin Plan revision, this correction should be made so that a well-accepted science-based approach is employed.

Finally, MANA applauds the reduced emphasis in this Draft on the findings of Dr. Sholz. MANA fully shares Dr. Felsot's views about the limitations of that work, as is more fully explained in Attachment D.

Specific Comments

Comment 1: Current conditions are sufficiently different from historic conditions that it is unreasonable to rely on pre-2000 monitoring data to justify action.

In light of recent changes in diazinon labeling, the extensive grower education programs of the Coalition for Urban/Rural Environmental Stewardship ("CURES") (of which MANA is a major supporter) and the substantial decrease in use of diazinon products during the last ten years (noted at page 15 of the Draft), monitoring results from before 2000 are not representative of current or future conditions. The draft report properly recognizes this at page 71, in tables 4.8 and 4.9, and in the second paragraph of page 17.

Earlier in the Draft, however, these facts are ignored. Both pages 7 and 11 the Draft describe "monitoring since 1991" as having "confirmed the widespread presence" of diazinon. This is incorrect. Historic monitoring may have evidenced historic conditions, but is not indicative of current conditions. As the data presented in the Draft and appended analysis of more recent data shows (Attachments A, B and C), at this time diazinon is hardly a "widespread presence." This sentence should be deleted in both places.

Furthermore, the last sentence of the second paragraph of page 17 ("the lack of exceedances may also be affected by the paucity of storms of sufficient magnitude to generate runoff and by a less intense sampling effort") is inconsistent with reality and other aspects of the Draft's analysis, and should be deleted. As is correctly noted at page 71, four years of data is sufficient to account for the variability of precipitation and river flow from year to year. In

addition, Table 1.5 reveals a sufficiently large number of samples in recent years to be representative.

Comment 2: If the Board intends to rely on chemical parameters in setting a diazinon numeric water quality objective, there is little reason for a significant delay in doing so.

In light of the representations made by the Regional Board to the Court which heard the *MANA v. State Board, et.al.* lawsuit, and the Court's reliance on those representations in its decision, MANA understands the basis of the Board's reluctance to act at this time to adopt diazinon numeric water quality objectives for the San Joaquin River. MANA does not believe that a substantial delay in doing so is appropriate, however, unless the Board is prepared to reconsider its release on chemical parameters as a basis for doing so.[1]

For one thing, assuming the Board continues to reject the benefits of relying on analysis of actual environmental field conditions or other more modern approaches, it is facially inconsistent to defer establishing such numerical objectives while still using them in "additive toxicity" analysis (*see, e.g.,* p.16, 30) and in establishing loading capacities. As explained in its numerous prior submission to the Regional Board (including Attachments F, G and H), it is not appropriate to rely in chemical parameters in establishing water quality objectives. Moreover, the metrics used in applying water quality objectives to point sources cannot be used in the nonpoint source context. *See* Attachment I. Nor, as explained elsewhere in these comments, does MANA believe any additivity analysis or requirements should be incorporated in these amendments. *See* pp 2-3 above, pp. 6-7 below.

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[1] MANA continues to believe that the narrative toxicity objective cannot properly be read to override the narrative pesticide objective, for the reasons set forth in Attachment E.

However, to the extent the Board is to continue to rely on chemical parameters, at this time the appropriate ones to use are either the identical 0.15 ug/L acute and chronic criteria calculated by the Board staff using the USEPA data base, after exclusion of the unreliable *Gammarus fasciatus* data, or the targets described by Lenwood Hall in Attachment G. As the Draft itself states at page 50, of the information before the Board in this proceeding prior to receipt of these comments, the staff's calculations represents "the best available information for interpreting the narrative toxicity objective and the narrative pesticide objective for protection of beneficial uses". In the face of this finding, the Board cannot elsewhere employ the 0.15 and 0.10 ug/L targets calculated by CDFG after discovery of the *Gammarus fasciatus* data errors. Furthermore, the analysis undertaken by Hall and appended at Attachment J demonstrates that the two numbers should be 0.165 ug/L, not 0.15 ug/L.

We also note that USEPA appears ready to soon publish final water quality criteria for diazinon. (The Agency proposed identical 0.100 ug/L acute and chronic criteria in its 2000 draft ambient aquatic life water quality criteria.) Assuming this final publication recognizes the deficiencies in the G*amarrus faciatus* study previously brought to the Board's (and EPA's) attention by MANA, and the Board's continued insistence on using a chemical-parameter-based methodology in establishing a diazinon objective, these likely will provide a basis for promptly doing so.

Comment 3: There is no basis to incorporate an additivity-based element in this amendment.

As the Draft notes, the existing Basin Plan requires that "where multiple toxic pollutants exist together" the Board should evaluate their "interactive toxicity" on a "case-by-case" basis, and that "cumulative impact" will be considered if more than one pesticide is present in the

waterbody." (pp. 36-37) Further, additivity will be "initially assume[ed]" where more than one pesticide is present in the waterbody. (p. 45).

The use of the terms "case-by-case" and "initially assume[ed]" demonstrate recognition of the inherent flexibility necessary in undertaking any "additivity" analysis. Such analyses are inherently difficult to rationally perform, as Dr. Felsot's peer review comments demonstrated. Moreover, requiring responses from regulated entities who use only one of the pesticides considered to be an additive is inherently unfair, since the product the entity is using may have not triggered the exceedence and, indeed, may have been properly employed. (Growers typically use either diazinon or chlorpyrifos, but not both products.) Indeed, such resolution may result in reduced sales and use of one product or the other, to the substantial detriment of suppliers, for no rational reason.

Furthermore, in the current context, no rational basis exists for employing such an analysis. As the analyses appended as Attachments A , B and C reveal, and as is discussed at page 2 and 3 above, diazinon and chlorpyrifos only rarely co-occur in samples taken from the San Joaquin in recent years: both consultants are found in only about 4% to 7% of the samples.

Moreover, as Dr. Felsot reported to the Board, it is not valid to assume that all concentrations are additive "when they are below a certain threshold of response." Peer review comments, p. 3 This is the case here. As explained above, co-occurrences of both chlorpyrifos and diazinon genus mean acute values for *Ceriodaphnia* is found in only 0.61% and 0.34 % of the two most recent data sets, respectively. *See* Attachment C, pp. 1-3 above.

Thus, there is no rationale basis incorporating any requirements based on additivity analysis in this Basin Plan amendment.

Comment 4: The draft uses the wrong denominator in its additivity analysis.

MANA recognizes and appreciates the Board staff's effort to incorporate the peer review comments of Dr. Felsot. However, the Draft continues to incorrectly use the water quality target (which contains a safety factor) in the denominator of the additivity equation calculation, despite Dr. Felsot's clear guidance that the denominator in this formula must be based on a definitive toxicity endpoint (e.g., an LC50), not a value such as a target that already includes a 2-fold safety factor. While the Draft acknowledges and evaluates Dr. Felsot's alternative Toxic Equivalents Method for undertaking an additivity analysis, it uses water quality objectives (with, therefore, the flawed use of safety factors) rather than LC50 values in the calculations.

As noted elsewhere in these comments, MANA does not believe it appropriate to be undertaking any additivity analysis in connection with these proposed Basin Plan amendments. If this is done, however, the calculations described at pages 16 and 55-56, and incorporated in the Draft amendments at page 30-32, should be rerun with the correct inputs.

Comment 5: The text of the Amendment should be revised to make it clear that only exceedances related to diazinon could result in a prohibition of diazinon use.

As currently written, the proposed amendment text could be read to impose a prohibition on diazinon discharges solely because of exceedances of the chlorpyrifos standards, and vice versa. This would be fundamentally unfair. Regardless of what the Board finally does with regard to the additive toxicity issue discussed above, the provision should be rewritten to avoid this result. In this regard, MANA urges the following changes to the first paragraphs of section 8, page 29:

> Beginning December 1, 2008, the direct or indirect discharge of ~~diazinon or~~ chlorpyrifos in to the San Joaquin River is prohibited during the dormant season

(1 December through 1 March) if any exceedance of the chlorpyrifos water quality objective, ~~diazinon and~~ chlorpyrifos loading capacity, or ~~diazinon and~~ chlorpyrifos load allocations occurred during the previous dormant season. Beginning at the same time, the direct or indirect discharge of diazinon in the San Joaquin River is prohibited during the dormant season (1 December through 1 March) if any exceedence of the diazinon loading capacity or diazinon load allocations occurred during the previous dormant season. ....

Beginning March 2, 20009, the direct discharge of ~~diazinon or~~ chlorpyrifos into the San Joaquin River is prohibited during the irrigation season (2 March through 30 November) if any exceedance of the chlorpyrifos water quality objective, ~~diazinon and~~ chlorpyrifos loading capacity, or ~~diazinon and~~ chlorpyrifos load allocations occurred during the previous irrigation season. Beginning March 2, 20009, the direct discharge of diazinon into the San Joaquin River is prohibited during the irrigation season (2 March through 30 November) if any exceedance of the diazinon loading capacity, or diazinon load allocations occurred during the previous irrigation season ....

Comment 6: The discussion of the WTC decision misconstrues the holding.

In light of the supplemental label now used on diazinon products in California (see Draft, p. 20), the holding of the *WTC* decision discussed at page 19 is largely irrelevant as to diazinon. Nonetheless, the case summary should be rewritten to recognize that the injunction issued by the District Court runs only against EPA and the trade association intervenors. It prohibits EPA from authorizing use of the covered products within the buffer area, and required the trade

associations to assist in various communications activities, but does not directly impose any prohibitions on diazinon sellers or users.

This distinction is especially important in light of the implication of the last sentence of the section. ("However, no enforcement of the court-ordered buffers is currently occurring.") In fact, both EPA and the intervenors have complied with their obligations, and the District Court has rejected repeated efforts by the plaintiffs to challenge the adequacy of that compliance.

Comment 7: The Draft correctly rejects the 1/10 approach in interpreting narrative objectives.

The Draft properly rejects the possibility of considering $1/10^{th}$ of the 96-hour LC50 as a diazinon concentration to interpret the narrative objectives (pp. 47-48, 61-62). Sufficient technical information exists to establish target diazinon water quality objectives, whether the Board continues to rely solely on chemical parameters for this purpose or employs the environmentally-based approaches MANA believes preferable. However, as explained elsewhere in these comments, the proper numbers to use, at least until EPA publishes final diazinon water quality criteria, are the identical acute and chronic criteria of 0.15 ug/L calculated by the staff using the USEPA data set minus the *Gammarus fasciatus* results. (*See* Draft p. 50).

Comment 8: No basis exists for the Board to determine that the presence of diazinon in surface waters does not benefit the people of California.

At page 49, the Draft includes a theoretical discussion of whether water quality objectives could be based on having no diazinon or chlorpyrifos in the waters of the State. MANA understands that the discussion was included in the Draft for purposes of completeness, but it should be revised to note that it is, in fact, entirely theoretical. In light of the existing record -- which shows that diazinon is lawfully being used by growers in the State -- and the absence of evidence that diazinon at the low levels measured in San Joaquin River basin presents any threat

whatsoever to human health or the environment, the Board lawfully could not make such a determination.

Comment 9: A long term schedule of compliance should be adopted.

Pages 77-80 discuss alternative times schedules for compliance with the Basin Plan amendments. The draft concludes that the "medium term" option should be selected. MANA believes this is incorrect, and that it would be more reasonable to select the "long term" option.

MANA bases this view on several considerations. First, recent controversies surrounding implementation of the "ag waiver" indicate that it will be sensible to allow more time to sort out the difficult questions raised by its implementation. Second, the data presented in the draft shows there is no compelling reason to accelerate attention to what clearly is a substantially lesser concern than existed at the time reaches of the San Joaquin were listed as "impaired." Third, because the standards the Board prefers would be based upon chemical parameters, rather than actual evaluation of environmental conditions, there is no reason to believe that enforcement of the standards will have any significant protective benefit. To the contrary, as the Board is well aware, all environmentally-based analyses have indicated that healthy water quality will exist even if there are occasional exceedances of the chemical parameters favored by the Board. Finally, questions that recently have been raised about the environmental impacts of several alternatives of diazinon suggest that a premature effort to further discourage use of this product may boomerang.

Under these circumstances, the cautious approach embodied in the "long term" schedule makes the most sense.